Client/Server Architecture with Multithreading

C++

DEMO PROJECT

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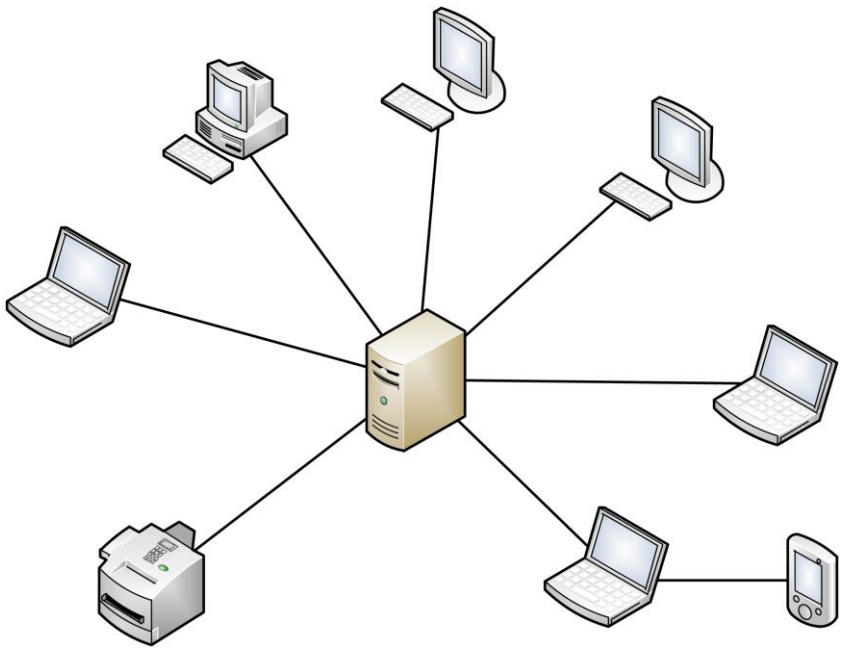


Contents

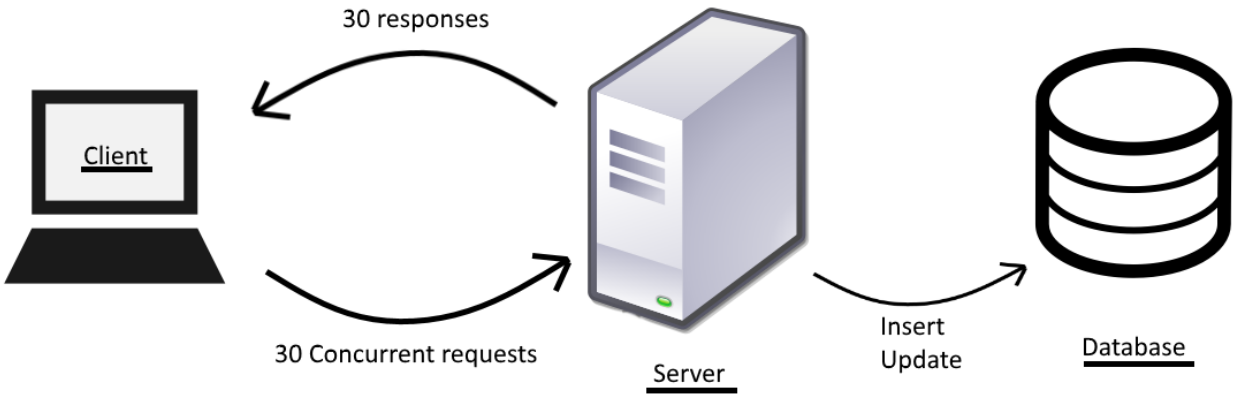
Introduction

This is a Client/Server demonstration written in C++ with multithreading. Both the client and server are multithreaded. The client creates thirty socket requests to send to the server. The Server forks each request to create a child process. The server is also using the MySql connector. Each server thread inserts the thread process ID and current status of the thread request into the MySQL 'insert_table'. Each of the client and server components are separated into classes. For example, the mysql.h and mysql.cpp files handle the SQL requests in the server program.

I have demonstrated concepts such as:

- Object Oriented C++ programming and using class structure
- C++ connectors
- Multithreading
- Client/Server architecture
- Using makefiles and compilers

Diagram


30 responses
Client
30 Concurrent requests
Server
Insert
Update
Database

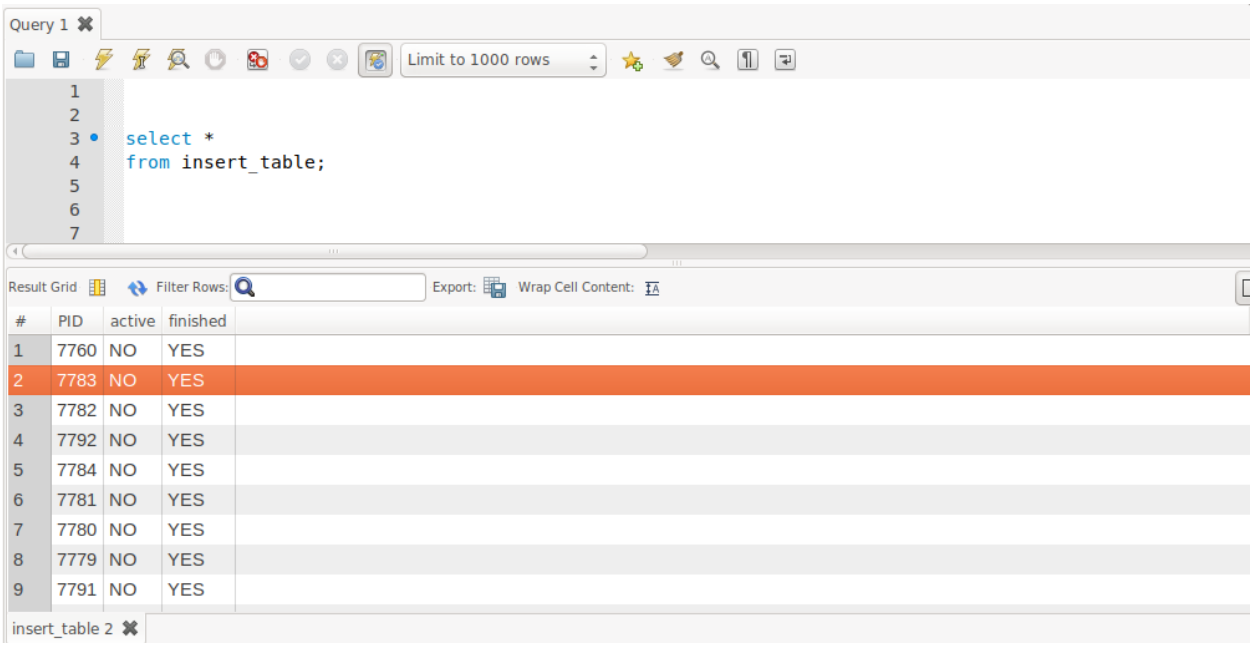
System Requirements

At the time of testing I was using:

- Ubuntu (Linux) (POSIX env.)
    - Apt-get
        - build-essential
        - manpages-dev
        - libmysqlcppconn-dev
        - libmysqlclient-dev
- G++ v7.4.0 compiler
- MySql v14.14 for Linux
    - MySql C++ Connector

Execution Results

Each thread is inserting the values ‘PID’, ‘active’, and ‘finished’ into the ‘insert_table’ table in MySql. The Threads also updates the ‘active’ and ‘finished’ fields based on where in the code the thread is positioned.



#	PID	active	finished
1	7760	NO	YES
2	7783	NO	YES
3	7782	NO	YES
4	7792	NO	YES
5	7784	NO	YES
6	7781	NO	YES
7	7780	NO	YES
8	7779	NO	YES
9	7791	NO	YES